REPORT

ON THE

Aligarh Agricultural Station

OF THE

UNITED PROVINCES OF AGRA AND OUDH.

FOR THE YEAR ENDING JUNE 30th, 1908.

ALLAHABAD:
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1908.

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on 24 February, 2020

No. $\frac{228}{\text{A-29}}$ of 1908.

From

W. H. MORELAND, Esq., C.I.E., I.C.S.,

Director of Land Records and Agriculture,

United Provinces.

To

The CHIEF SECRETARY to GOVERNMENT,

United Provinces.

Dated Aligarh, the 7th December 1908.

Sir,

I have the honour to submit the report on the Aligarh Agricultural station for the year ending 30th June 1908. The report has been written by Dr. A. E. Parr, Deputy Director of Agriculture, who assumed charge of the Western Circle towards the close of the year.

I regret the delay in submission which has been caused by a misapprehension in the newly organized office.

I have the honour to be,

Sir,

Your most obedient servant,

W. H. MORELAND,

Director.

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Report on the Aligarh Agricultural Station for the year ending 30th June 1908.

CHAPTER I.

(*a*) OBJECTS OF THE STATION.

ALIGARH was originally chosen as a suitable centre for the introduction of a better stapled cotton, and for the supply of seed from selected plants.

This work is being continued.

Attention is also being given to improvement of the country cotton by careful "plant to plant" selection.

Another question which occupies the station is the supply of suitable implements.

Every facility is given to encourage the hiring of implements by cultivators, either on trial or for use for longer periods of time, since many who are interested are not in a position to buy outright.

(*b*) SITUATION, AREA AND SOIL.

The station lies on the Aligarh-Ramghat Road about two miles from the East Indian and Oudh and Rohilkhand Railway station.

The total area is 88·06 acres. A bungalow and office have been completed by the Public Works department during the year.

Soil.—The soil is a light reddish loam typical of the surrounding district. The Koil distributary of the Upper Ganges Canal supplies water for irrigation purposes.

Levelling and observation of the soil have gone on during the year.

The following shows the complete analysis of the soil carried out in 1907, by Dr. Leather, Imperial Agricultural Chemist, to the Government of India :—

	Low-lying land near tank.		End of parallelogram near building.		Near Rajbaha.		Barren land.	
	Soil.	Sub-soil.	Soil.	Sub-soil.	Soil.	Sub-soil.	Soil.	Sub-soil.
Carbon dioxide ...	·03994	·119	·0792	·0599	·0597	·1197	·4344	·4355
Calcium carbonate ...	·0909	·2705	·1802	·1363	·1360	·2787	·9884	·9909
Organic nitrogen ...	·052	·041	·033	·033	·034	·028	·027	·020
Organic carbon ...	·367	·275	·201	·218	·240	·218	·144	·126
Available phosphoric acid	·0299	·0191	·0264	·0198	·0319	·0191	·0135	·009
Available potash ...	·0163	·0139	·0070	·0062	·0077	·0054	·0062	·0124

Composition of the same soil samples in regard to the percentage of salts.

	Low-lying land near tank.		End of parallelogram near building.		Near Rajbaha.		Barren land.	
	Soil.	Sub-soil.	Soil.	Sub-soil.	Soil.	Sub soil	Soil.	Sub-soil.
Sodium carbonate ...	...	....	...	...	·003	·016	·192	·260
Sodium sulphate ...	...	...	·001	·005	·006	·012	·013	·014
Sodium chloride ...	·001	·009	·012	·025	·009	·012	·013	·023
Magnesium sulphate ...	·004	·003	·007	·014	...	...	....	...
Magnesium chloride ...	·021	·023	...	....	...	...	...	....

CHAPTER II.

EXPERIMENTS WITH ACCLIMATIZED AMERICAN COTTON.

Experiment I was undertaken in order to compare early sown American cotton with that sown during the rains.

Eight plots, each $\frac{1}{10}$th acre, and of, as near as possible, uniform quality were selected and two varieties of cotton, namely Watagodu and Allen, were sown on duplicate plots.

One set was sown on May 19th 1907 with canal irrigation and the other on July 26th 1907 with the rains.

The following table shows the outturns of good seed cotton (kapas) obtained per acre, in pounds :—

Plot Number	1	2	3	4	7	8	9	10
Crop ...	Watagodu	Allen	Watagodu	Allen	Watagodu	Allen	Watagodu	Allen
Early sown	588	936	...	...	...	...	1,035	869
Sown with rains.	...	...	83	80	39	28	...	...

Owing to the drought the late sown crop practically failed.

The results in the plots sown with irrigation were very favourable.

Experiment II consists of a comparison of deep and early ploughing with late ploughing.

Two sets of plots were sown with the Hybrid American variety.

The following statement shows the outturns in pound per acre :—

Treatment of plot.	Actual area sown.	Weight of good kapas in pounds per acre.
Early ploughing, *viz.* ploughed just after removing wheat.	½ acre	938
Late ploughing, *viz.* ploughed just before sowing.	½ acre	779

The above figures indicate a considerable advantage in favour of deep and early ploughing.

Experiment III was undertaken to compare different methods of sowing namely: —

(*a*) Dibbling in rows 3 feet × 2½ feet.
(*b*) Broad-casting.
(*c*) Sowing after the plough in rows 3 feet apart.

The Allen variety of American cotton was sown.

The following table gives the results obtained in pound per acre :—

Number of plot.	1	2	3	7	8	9	Weight of kapa per 100 plants.
Number of plants in each plot.	3,820	7,320	4,490	8,650	3,000	5,800	...
Dibbled ...	552	...	...	...	468	...	14·6
Broad-casted ...	...	610	...	553	...	...	7·3
Sown after plough.	...	...	494	...	...	426	10·9

From the above it will be seen that dibbling is not advisable. Again the cost is prohibitive.

Sowing in rows behind the plough admits of easy after cultivation and a uniform stand of trees.

Trial of Tehaiya (yellow flowered) and Bakand (white flowered) types of country cotton.—The seed of these two varieties was obtained locally and sown for comparison.

The statement below shows the outturns obtained :—

Area sown in acres.	Kind of cotton.	Outturn per acre in lbs.
·32	Bakand	588
·32	Tehaiya	486

Afghanistan cotton was sown on a small scale. The seed germinated well but the plants were attacked by disease. To prevent this spreading to other plots the plants were cut and burnt.

CHAPTER III.

SELECTION OF AMERICAN AND LOCAL COTTON.

(1) **American acclimatized cotton.**—From an area of about eleven acres twenty-eight plants were originally selected in 1906. The primary selection was based on ball productiveness and well developed trees. The lint from each plant was collected separately and carefully examined. Those not extra good were discarded. This work has been carried on.

(2) **Standard of selection.**—A length of staple $\frac{7}{8}$—1 inch has been taken as the best standard combined with a good percentage of lint to seed and productiveness.

The following table gives the details of the plants retained :—

Finally selected plants to be sown in 1908-1909.

Plant No.	Total No. of plants.	Weight in grains.			Percentage of lint to seed.	Remarks.
		Lint.	Seed.	Total.		
		American cotton.				
1	6	5,215·625	14,434·	16,679·625	31·449	
9	10	15,237·625	35,907·150	51,144·775	29·793	
11	10	16,177·875	38,486·375	54,664·250	29·594	grains.
13	10	9,880·25	21,683·75	31,564·	31·302	10 seed=14,13,16,14
16	10	15,176·75	28,604·375	43,781·125	34·665	10 do. =13,13,12,12
19	10	11,580·375	30,098·125	41,678·5	27·785	
21	10	8,568·25	19,849·875	28.418·125	30·150	
25	10	12,783·	33,810·375	46,593·375	27·435	
26	10	12,641·125	29,736·125	42,377·250	29·829	
57C. 1	10	17,825·875	43,182·25	61,008·125	29·202	
30	1	1,266·125	2,854·25	4,120·375	30·72	
31	1	1,113·75	2,475·25	3,589·	31·03	
61 1	...	Hayman's Fuzless Medium stapled cotton.				Original seed 75 %
62 2	...	Do.	Do.	Do.		55·7 %
		Country cotton.				
27	10	10,902·125	20,577·5	31,479·625	34·63	
W. F.	...	5,046·25	8,379	13,425·25	37·58	
Y. F.	...	4,692·75	8,994·75	13,687·50	34·27	

CHAPTER IV.

MISCELLANEOUS.

(1) **Sub-centres.**— Work was continued at the sub-centres Chirooli and Gojia and implement demonstrations were given at several shows.

(2) **Cotton seed distribution and cotton buying.**—One hundred and thirty maunds of American cotton seed were distributed. According to the arrangements the produce was purchased by the department. The price paid was on a basis of Rs. 2 more per maund of Kapas, than the average price of country in the bazar. About Rs. 5,100 were spent in the purchase of this cotton.

(3) **Work on the reclamation of usar lands at Gursikran.**—The above usar was acquired some years ago for the purpose of carrying out experiments to indicate lines on which such lands may be rendered useful :—

(a) The cause of barrenness at Gursikran is evidently due to an impervious layer lying a few feet below the surface. "Thalas" were bored through this with a 12″ auger and the holes filled with good soil. In August 1907 Chhounkra (prosopis spicigera) seed was sown on thirty thalas. The seed germinated well and the plants are flourishing.

(b) *Trial of salt bush.*—The two varieties of Australian salt bush introduced three years ago have been maintained. This plant dies every year during the rains and seed is collected for future propagation. It does not stand the hot weather on usar land unless regularly watered. Waterlogging also proves fatal.

(c) The reh scraping experiment and those concerned with the application of gypsum and lime were maintained through the year.

ALIGARH :
The 23rd November 1908.

A. E. PARR,
Deputy Director of Agriculture,
Aligarh Circle, United Provinces.

APPENDICES.

APPENDIX A.

Character of the season and rainfall.

The monsoon opened on 21st June 1907, but the falls of rain, up to 22nd July were insufficient for germination.

Rain fell at the end of July and beginning of August and sowing went on briskly. Later on hot winds blew. At the end of August water was badly needed. Canals were run in the 2nd week of September but the supply was scanty.

Kharif was practically a failure. Early sown cotton did well where irrigation was available. All the rabi was sown with irrigation.

Rain fell in January and February and was very beneficial to the rabi.

The following table gives the rainfall :—

Rainfall recorded at the Government Agricultural Station, Aligarh.

Month and date.		Rain-fall in inches.	Total per month.
June 1907 ...	21st	·04	
	22nd	·50	
	24th	·01	·55″
July ...	20th	·23	
	22nd	·06	
	25th	·70	
	26th	·20	
	30th	1·38	2·57″
August ...	1st	1·41	
	2nd	4·85	
	3rd	·29	
	6th	·73	
	7th	·38	
	9th	·16	
	10th	·50	
	14th	2·22	
	15th	1·18	
	16th	·50	
	19th	·03	
	24th	·08	12·33″
January 1908...	11th	·43	
	12th	·11	·54″
February ...	9th	·03	
	10th	·18	
	11th	·01	
	14th	·02	·24″
Total of the year	...	...	16·23″

Appendix B.

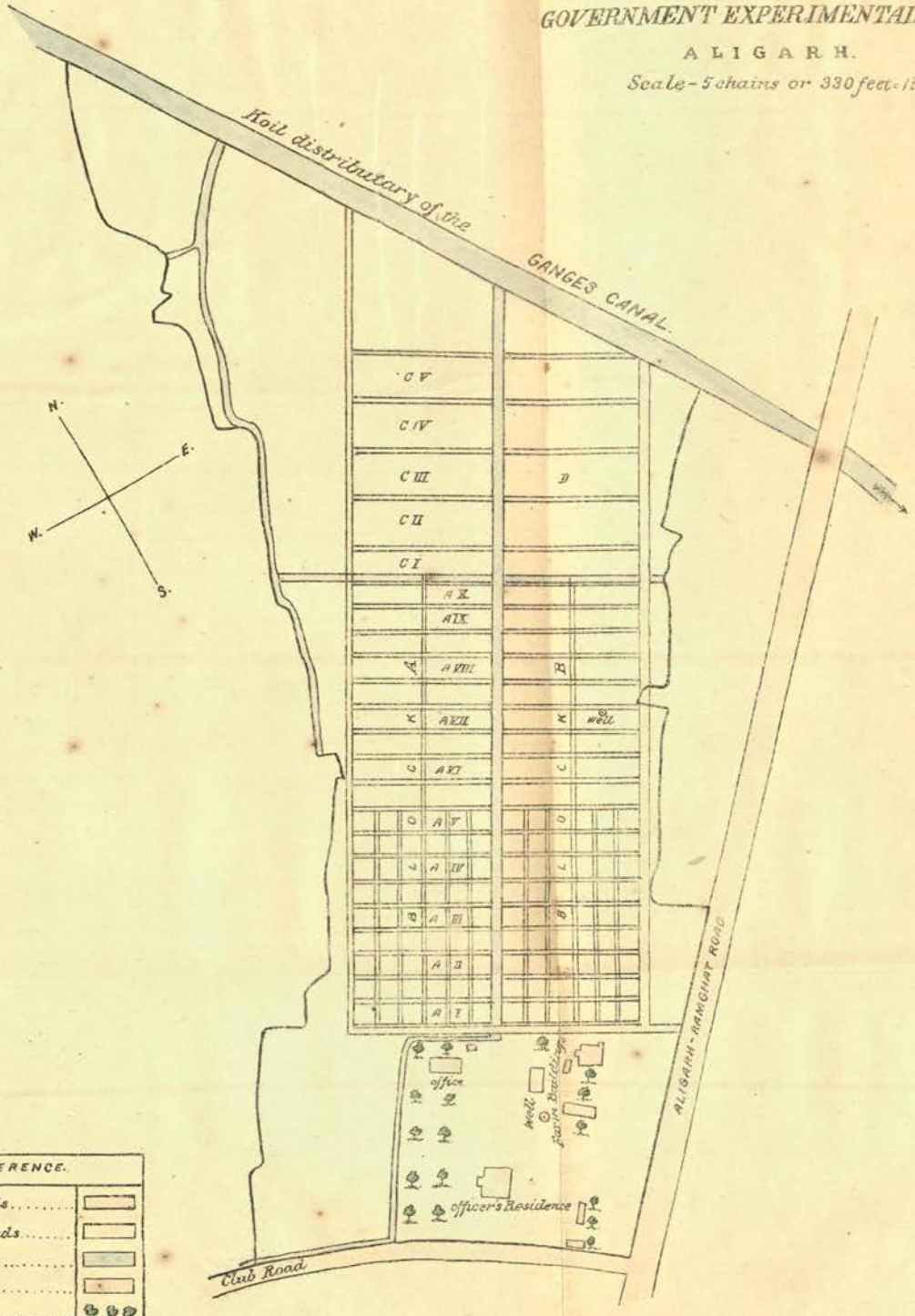
SITE MAP

OF THE

GOVERNMENT EXPERIMENTAL STATION,

ALIGARH.

Scale - 5 chains or 330 feet = 1 inch.



REFERENCE.	
Pucca roads	
Kutcha roads	
Canal	
Buildings	
Trees	
Boundary	
Roads between plots	
Water courses	

Litho, Govt Press, Allahabad.

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